Physics 11
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# Formal Lab Report Dos and Don'ts

**General**

| Don't | Do |
|---|---|
| Include the lab handout. | Type up any necessary information from the lab handout in your report. |
| Write your report by hand. | Have all text word-processed. |
| | Use 1" margins on all sides. |
| | Use the font Times New Roman or Arial (or similar) and a font size no larger than 12. |
| Submit files for the report, graphs, etc. | Combine all files into a single pdf file. The graphs and other figures should inserted at appropriate locations in your report. |
| Write or white-out work last minute by hand. | Prepare your report before the due date and have it reviewed by peers. |
| Write with too much or too little detail. | Consider your audience when deciding on how much detail to include. Write enough that another high school Physics student could repeat your experiment but probably not enough that a Science 8 student could do it. |
| | Keep your report as brief as possible. When you are done, it should be true that you can not cross out any sentence in your report without losing meaning. |
| | Write clearly. Often, but not always, this means using short sentences. Unless you must do otherwise, write in the present tense. |

**Introduction**

| Don't | Do |
|---|---|
| | State the purpose/objective of the lab. |
| Simply list a bunch of equations. | Introduce each equation explaining each variable used. |
| | Write down, beginning from the fundamental equations (as found on your formula sheet), any essential steps leading from the fundamentals to the set of equations essential to your work. |
| | Include answers to all Introduction questions found on the lab handout. |

**Experimental Method**

| Don't | Do |
|---|---|
| Simply staple the lab handout. | Include an apparatus diagram. |
| | Label the apparatus diagram. |
| | Include the procedure in your own words with enough detail that the reader can understand how measurements were made and can identify potential flaws. |

**Data**

| Don't | Do |
|---|---|
| Simply staple the lab handout. | Include data in word-processed tables. |
| Include units in each entry/cell. | Include units in brackets at the top of each column. |
| Have a table run across multiple pages. | Format your table and/or page so the table is all together on the same page. |
| | Include measurements to the correct number of significant figures. |

**Graphs**

| Don't | Do |
|---|---|
| Use blank or lined paper for hand-drawn graphs. | Use grid paper for hand-drawn graphs. |
| Try to fit the plot on less than half a page. | Choose a sensible scale which allows the data to fill the entire page. |
| | Use round numbers for the scale (unmarked grid lines should also be round numbers). |
| Connect the data points. | Draw a best fit line for data which is linear. |
| Draw a line that connects the first data point or the origin to the last data point. | Draw a best fit line which follows the trend of the data and has an equal number of points above and below. |
| Draw a best fit line for data which is not linear. | Draw a smooth best fit curve if the data is not linear. |
| Label the axes "*y*" and "*x*." | If included, use the same symbols for the axes which are used in the text. |
| | Include a label for each axis with units in brackets. |
| Title the graph *y*-variable vs. *x*-variable. | Include a descriptive title or caption which clearly explains the graph. |

 

**Analysis and Discussion**

| Don't | Do |
|---|---|
| Simply include stand-alone calculations. | Accompany calculations with an interpretation (in paragraph form) of what the calculations show or represent. |
| | Accompany all graphs with an interpretation describing the relationship between the two variables. |
| Use data points to calculate the slope. | Use two points on the best fit line to calculate the slope. |
| Manually calculate the slope for a computer-generated graph. | Display the equation of the best fit line on the graph. Take the slope directly from the equation. |
| Write a value without units (unless the quantity is unitless). | Express all measured and computed values with correct units. |
| Use "$y$" and "$x$" as variables when writing the equation for the best fit line. | Use the variables the the axes represent when writing the equation for the best fit line. |
| State theoretical values without any justification. | Show derivations of theoretical values. |
| Include the following in as sources of error: human error, old equipment, calculation mistakes. | Review each step in your experimental method and identify possible sources of error in each step. |
| As a source of error, state that measurements are not exact. | Identify specific sources of error which would have affected the accuracy and/or precision of your results. |
| As a source of error, state that mistakes were made (e.g. calculation errors, improper use of equipment) | If you suspect that you have made a mistake, review your work and repeat the experiment if necessary. |
| | Address all points in the Analysis and Discussion section of the lab handout. |

**Conclusion**

| Don't | Do |
|---|---|
| Neglect to address the purpose of the stated in the introduction. | Briefly summarize what you did in the lab to achieve the objective. |
| | Restate what your main results were. With numbers, if applicable. |
| | Compare the experimental results to accepted values (e.g. state the theoretical values along with percent error). |